REMARKS

The Office Action rejects claim 7 under 35 U.S.C. § 102(b) as being anticipated by JP 4-250674. The Office Action also rejects claims 8-10 under 35 U.S.C. § 103(a) as being obvious over JP 4-250674 in view of JP 4-116162. The Office Action also rejects claims 11-12 under 35 U.S.C. § 103(a) as being obvious over JP 4-250674 in view of JP 59-85868. The Office Action also rejects claim 13 under 35 U.S.C. § 103(a) as being obvious over JP 4-250674 in view of JP 59-85868 and Kinoshita et al. (U.S. Patent No. 5,173,130). These rejections are traversed.

Applicants first point out that, according to the U.S. Manual of Patent Examining Procedure (MPEP) Section 706.02 II, "reliance upon an abstract without citation of and reliance upon the underlying scientific document is **generally inappropriate** where both the abstract and the underlying document are prior art...To determine whether both the abstract and the underlying document are prior art , **a copy of the underlying document must be obtained and analyzed**. If the document is in a language other than English and the Examiner seeks to rely on that document, **a translation must be obtained** so that the record is clear as to the precise facts the Examiner is relying upon in support of the rejection...In limited circumstances, it may be appropriate for the examiner to make a rejection in a non-final Office Action without relying on the full text document. In such limited circumstances, **the full text document and a translation (if not in English) may be supplied in the next Office Action**..." (emphasis added).

Thus, Applicants respectfully request that the Examiner provide Applicants with translations of the non-English documents.

Applicants note that the presently claimed invention requires a "light emitting diode comprising a pellet, a major front surface of which is made of a GaAsP mixed crystal, characterized in that the major front surface is a rough surface" (claim 7) and a "fabrication process for a light emitting diode having a pellet, a major front surface of which is made of a GaAsP mixed crystal, characterized in that the pellet is treated with an etching solution of an aqueous solution containing Br_2 or I_2 to form fine projections on at least the major front surface of the pellet" (claim 11).

The Office Action continues to assert that JP 4-250674 discloses "a light emitting diode...with a GaAsP mixed crystal, wherein the major front surface is a rough surface" (see section #3 on page 2 of the Office Action). The Examiner further states that "the selective etching step is a step in which the etching process selects a particular area of the GaAsP layer to etch [and...] the GaAsP layer may have other portion(s) remaining in the LED...[and] the etching step may leave a rough surface on some portion(s) of the GaAsP layer, since the etching step does not actually etch all of the GaAsP layer" (page 6, first full paragraph of the Office Action).

Although the Office Action incorrectly asserts that "the etching step **may** leave a rough surface on some portion(s) of the GaAsP layer" (Office Action page 6, emphasis added), as noted in the U.S. MPEP Section 2112 IV, "[t]he fact that a certain result or characteristic may occur or be presenting the prior art is not sufficient to establish the inherency of that result or characteristic." Thus, even if it was possible or probable that some GaAsP layer may have a rough surface (which it is not), this would not be sufficient for the anticipation rejection made in the Office Action.

In any case, Applicants have attached hereto a partial translation of JP 4-250674. In the bracket [0009][Example], lines 5-6 (underlining added), it states that "...the substrate side was polished up to 50±2 μm. At this point, after an SiO_2 mask was formed,...". Thus, it is clear that a layer adjoining an SiO_2 mask is the substrate, namely GaAs, and therefore, even at the portion that the mask was formed, a GaAsP layer formed on the substrate does not exist as a "front surface".

In the paragraph [0006], lines 5-6 (underlining added), it is stated that "[o]n the other hand, in case of GaAsP, it is found that the smooth surface after etching can be obtained". Thus, JP 4-250674 discloses that "rough surface" does not exist even if a GaAsP layer was not removed completely at the portion of not forming mask (etching selectively). In fact, JP 4-250674 appears to teach against such a "rough surface" since it teaches that a smooth surface after etching can be obtained with GaAsP.

Since JP 4-250674 does not teach or suggest, and in fact teaches against, GaAsP mixed crystal having a rough surface, Applicants respectfully submit that the presently claimed invention can not be anticipated by and would not have been obvious over JP 4-250674.

As is the case for JP 4-250674, none of JP 4-116162, JP 59085868, nor Kinoshita et al. teach or suggest GaAsP mixed crystal having a rough surface and thus do not make up for the deficiencies in JP 4-250674. Thus, Applicants respectfully submit that the presently claimed invention would have been obvious over JP 4-250674 in combination with any of these references.

For at least the above reasons, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(b) and under 35 U.S.C. § 103(a) are respectfully requested.

Applicants respectfully submit that this application is in condition for allowance and such action is earnestly solicited. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300 referencing Attorney Docket No. 107242-00005.

Respectfully submitted,

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Attachment: Partial English Translation of JP (4-250674)

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[0006]
Etching tests of GaAs and GaAsP were conducted by using concentrated nitric acid. In case of GaAs, it was found that the surface after etching is rough, but since the etching speed is 0.5 μm/min or more, GaAs has a high etching selectivity against AlGaInP because the etching rate of GaAs which is 0.5 μm/min or more is quite larger than that of AlGaInP, which is 0.1 μm/min or less. On the other hand, in case of GaAsP, it is found that the smooth surface after etching can be obtained. It is also found that since the etching speed of GaAsP is 0.5 μm/min or more, GaAsP has a good selectivity of AlGaInP. However, in case of the etching by concentrated nitric acid, there is crystal orientation dependency (anisotropy). As a result, the shape of a window is a square. This shape is not preferable because the current flows non-uniformly when an LED was made.

[0009]
[Example]
An approximately 50 μm epitaxial growth of $GaAs_1$-yPy ($0 \leq y \leq 0.4$) having a constituent gradient layer were conducted on a GaAs (100) substrate having a thickness of 400 μm by a vapor phase growth method. Further, an AlGaInP was epitaxially grown thereon in a double hetero structure by an MOCVD method. After the epitaxial layer side was attached to a glass plate, the substrate side was polished up to 50±2 μm. At this point, after an SiO_2 mask was formed, the substrate was etched like cone-shape with a solution consisting of Br_2 : HBr : H_2O = 1 : 4 : 100, and the etching was stopped at the point of approximately 5 μm from AlGaInP. Thereafter, the GaAsP was selectively etched against the AlGaInP at room temperature by using concentrated nitric acid with the SiO_2 mask, and etched up to the surface of the AlGaInP to form a window. Further, ohmic electrodes were formed at the GaAsP and AlGaInP sides to form a light emitting diode. By this method, a laser having the wavelength 590 nm could be extracted without absorbed by GaAsP or AlGaInP layers. Thus, there was obtained light emission intensity of approximately 1.5 times compared with the case of the GaAsP substrate.